

**Abstract**

When an angular acceleration  $\alpha$  of a rotating shaft of a motor connected with a drive shaft exceeds a preset threshold value  $\alpha_{\text{slip}}$ , which suggests the occurrence of a skid, the torque control procedure sets a maximum torque  $T_{\text{max}}$  by referring to a map, which gives a smaller maximum torque  $T_{\text{max}}$  with an increase in angular acceleration  $\alpha$ , and restricts the motor torque to the maximum torque  $T_{\text{max}}$ . The maximum torque  $T_{\text{max}}$  is fixed to a value corresponding to a peak value of the angular acceleration  $\alpha$  at the time of occurrence of a skid. The torque control procedure then integrates the angular acceleration  $\alpha$  to give a time integration thereof over an integration interval when the angular acceleration  $\alpha$  once exceeds the preset threshold value  $\alpha_{\text{slip}}$  and decreases again below the preset threshold value  $\alpha_{\text{slip}}$  by the motor torque restriction. When the motor torque restriction practically converges the skid, the torque restricted to the maximum torque  $T_{\text{max}}$  corresponding to the peak value of the angular acceleration  $\alpha$  is restored to the new setting of the maximum torque  $T_{\text{max}}$  corresponding to the time integration of the angular acceleration  $\alpha$ .